Czechoslovak Journal of Physics 1996 vol.46 NSUPPL. 2, pages 725-726

Multicritical points on the phase diagrams of layered ferromagnet/superconductor structures

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Abstract

On the framework of the Landau theory of phase transitions the coexistence and mutual accomodation of superconductivity and ferromagnetism in ferromagnet-superconductor (F/S) bilayers and superlattices are investigated. The dependence of superconducting transition temperature Tc on value of exchange field h of localized spins is calculated. The existence of tricritical point t and the Lifshitz point L on the phase diagrams (Tc, h) are predicted. It is shown that in the Lifshitz point two commensurately magnetic ordered phases and one phase with incommensurate ordering meet together; in so doing, two phases from three ones are superconducting.

http://dx.doi.org/10.1007/BF02583670